

## ABSTRACT

A pilot authentication system for commercial and non-commercial aircraft is provided. A processor containing a database of digitized fingerprints of individuals authorized to control a given aircraft is located in the aircraft and in communication with the aircraft's avionics computer. A plurality of sensors, including fingerprint and biometric sensors, sample the fingerprints and biometric information at an individual at the controls of the aircraft. The processor compares the sampled fingerprints to the database of authorized individuals, determining whether an unauthorized individual is at the controls of the aircraft.

Using the biometric information, the processor also determines whether a pilot is experiencing physical distress while at the controls of the aircraft. Further, the processor determines whether the aircraft is in motion and is not being controlled by either an authorized pilot or the aircraft's autopilot. In response to either an unauthorized pilot at the controls of the aircraft, physical distress experienced by the pilot, or an unattended aircraft condition, the processor generates a categorized alert signal and transmits same to a ground-based monitoring system. The signal contains information regarding the condition, including a digitized fingerprint of an unauthorized pilot. The signal is processed and alert means at the ground-based monitoring system are activated so that personnel can respond.

Additionally, the ground-based monitoring system, in response to an unauthorized pilot at the controls of the aircraft, stores the digitized fingerprint of the unauthorized pilot in a memory system, and alerts law enforcement personnel for corrective action. The ground-based monitoring system includes a master database containing fingerprints of authorized pilots. Both the aircraft-based and ground-based databases can be selectively manipulated to add or delete fingerprints of individuals authorized to control aircraft.